

Remarks/Arguments

A. Status of the Claims

Claims 22-67 were pending at the time the Action was mailed. Claims 22 and 47 are amended herein, support for which may be found in the specification as originally filed. *See, e.g.,* page 2, fifth paragraph. Claim 45 is cancelled without prejudice or disclaimer, and Applicant reserves the right to pursue the subject matter of claim 45 in this application or in another application that claims priority to this application. Claim 68 is new, support for which may be found, *e.g.,* at page 4, third full paragraph and in the Examples. No new matter is added by the amendments or the new claim. Claims 22-44 and 46-68 are therefore pending.

B. The Indefiniteness Rejection Is Overcome

Claims 22-67 are rejected as indefinite under 35 U.S.C. § 112, second paragraph. In one aspect, the Examiner contends that it is unclear from the claims whether the top silica or metal oxide layer formed by sputtering or ion assisted deposition stabilizes the film or not. Claims 22 and 47 have been amended in accordance with the Examiner's suggestion. However, Applicant disagrees with the Examiner's contention that this amendment implies that the SiO_xF_y layer cannot be a layer that is already stabilized as characterized by the Examiner on page 2 of the Action. In this regard, the present claims do not contain any limitation or requirement regarding the stabilization degree of the initial SiO_xF_y layer.

The Examiner also contends that the term "stabilized" is unclear. Applicant respectfully traverses, but in order to secure prompt allowance in this case, notes that claims 22 and 47 have been amended to recite, in part, "wherein the stabilized SiO_xF_y layer has a refractive index that is stable in time."

In view of the foregoing, the present claims are definite. Withdrawal of the indefiniteness rejection is respectfully requested.

C. The Anticipation Rejections Are Overcome

1. EP 0975017

Claims 47-54 are rejected under 35 U.S.C. § 102(b) as being anticipated by EP 0975017 (“EP”). Applicant respectfully traverses. In at least two aspects, EP fails to teach every element of the claimed invention, and therefore cannot serve as anticipatory art. *See* MPEP § 2131.

In one aspect, EP fails to teach a protective layer akin to the protective layer described in the rejected claims. As explained on page 11 of the Response to Office Action dated October 29, 2007 (“October 2007 Response”), Applicant noted that “EP explains that fluorine diffusion out of the FSG layer was not prevented by the SiO₂ cap layer (paragraph [0047])—*i.e.*, it was not a protective layer.” As such, a SiO₂ layer deposited by PECVD as described by EP does not result in a product that is similar to that of the presently claimed invention. October 2007 Response, page 12. Thus, contrary to the Examiner’s contention that the products of EP and the claimed invention are the same, the products are different in at least this regard. As such, the Examiner’s arguments do not support the anticipation rejection. *See* MPEP § 2112.01.

Moreover, EP teaches that a silica layer cannot stabilize a SiO_xF_y layer. *See* EP, paras. 16 and 39. Indeed, EP suggests to solve this problem by the replacement of the silica layer with a 10-200 nm thick SiO_xN_y layer. *See id.* at paras. 21, 48, 60 and 63. In the October 2007 Response, Applicant noted that the claimed method allowed for a refractive index of the underlying silicon oxyfluoride layer which is stable over time, and stated that this feature would not be obtained if the SiO₂ and/or metal oxide protective layer had been deposited without ion assistance or without sputtering. October 2007 Response, page 13. Present claim 47 specifically speaks to this feature, stating: “wherein the stabilized SiO_xF_y layer has a refractive index stable in time”. Moreover, para. 19 of EP cited by the Examiner discusses use of steps known in the art wherein the stability problem remains unsolved, as discussed in para. 20: “It is desirable to have

an arrangement... in which out diffusion of fluorine substances is prevented....” The absence of a stabilized layer is a second deficiency of EP in comparison to the presently claimed invention.

For at least the reasons presented above, EP does not anticipate the present claims. Applicant therefore respectfully requests that the rejection be withdrawn.

2. Jang

Claims 47-54 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 6,165,915 by Jang *et al.* (“Jang”). Applicant respectfully traverses.

At a minimum, Jang fails to teach “wherein said protective layer has been obtained through ion beam-assisted vapor phase deposition... or through cathodic sputtering....” As noted by the Examiner, Jang teaches the use of PECVD for the purpose of depositing a barrier layer. Action, page 5. The claimed deposition methods are different than PECVD, thus presenting one instance where the cited art does not teach every element of the claimed invention. Moreover, the Examiner has not pointed to any part of Jang that shows that the properties outlined in col. 7, lines 5-20 of that reference were actually achieved using PECVD. The anticipation rejection therefore appears insufficiently supported, and Applicant respectfully requests withdrawal of the rejection.

D. The Obviousness Rejections Are Overcome

1. Rejections in which EP is relied upon

Three obviousness rejections under 35 U.S.C. § 103(a) include the following: claims 22-30, 33 and 47-54 are rejected as being unpatentable over EP in view of Machol (U.S. Patent 5,719,705); claims 30-32 are rejected as unpatentable over EP in view of Machol and in further view of Lee *et al.* (*Surface and Coatings Technology*, 128-129:280-285, 2000) (“Lee *et al.*”); and claims 22-30 and 33-67 are rejected as unpatentable over Machol and Lee *et al.* in view of EP. Applicants respectfully traverse each rejection.

In order to support an obviousness rejection, a reference or combination thereof must teach every element of the claimed invention. *See* MPEP § 2143.02 (“A rationale to support a conclusion that a claim would have been obvious is that *all the claimed elements were known in the art....*”) (emphasis added); *see also In re Royka*, 490 F.2d 981 (CCPA 1974) (to establish *prima facie* obviousness of a claimed invention, all the claim features must be taught or suggested by the prior art). Indeed, as the Board of Patent Appeals and Interferences has recently confirmed, a proper obviousness determination requires that an Examiner make “a searching comparison of the claimed invention – *including all its limitations* – with the teaching of the prior art.” *See In re Wada and Murphy*, Appeal 2007-3733, *citing In re Ochiai*, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis in original).

As discussed above regarding EP, incorporated herein, EP fails to teach every element of the claimed invention. For example, the methods of EP do not teach “wherein the stabilized SiO_xF_y layer has a refractive index stable in time,” as presently claimed. It has not been asserted that either Machol or Lee *et al.* teach that using the deposition methods presently claimed will result in a refractive index that is stable in time. Thus, it has not been shown that these references together teach every element of the claimed invention.

Dependent claims 30-32 are not obvious over EP in view of Machol in view of Lee *et al.* The arguments presented above regarding EP and EP in view of Machol apply equally here, such that the claims are patentable. Further, if an independent claim is nonobvious, then any claim depending therefrom is nonobvious. MPEP § 2143.03.

Regarding Machol and Lee *et al.* in view of EP, it has not been shown that these references teach a “stabilized SiO_xF_y layer [that] has a refractive index stable in time.” As such, there is no showing that the combination of these references teaches every limitation of the present claims.

In view of the foregoing, the three obviousness rejections that rely upon EP are not supported. Applicant therefore respectfully requests that the rejections be withdrawn.

2. Jang

Claims 22, 26 and 30-33 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Jang. Applicants respectfully traverse.

As discussed above, Jang fails to teach the deposition methods presently claimed. As such, this reference fails to teach every limitation of the claimed invention. Accordingly, the obviousness rejection is unsupported. *See* MPEP § 2143.02. Withdrawal of the rejection is respectfully requested.

3. Machol and Lee *et al.* in view of Jang or Wang

Claims 22-67 are rejected as obvious over Machol and Lee *et al.* in view of Jang or Wang. Applicants respectfully traverse.

The Examiner concedes that Jang and Wang fail to teach the claimed deposition methods; as such, they cannot teach that the claimed deposition methods will result in a refractive index that is stable in time. *See* Action, page 14. As noted above, it has not been shown that Machol and Lee *et al.* teach that using the deposition methods presently claimed will result in a refractive index that is stable in time. For at least these reasons, it has not been shown that these references together teach every limitation of the claimed invention. Accordingly, the obviousness rejection is also unsupported. *See* MPEP § 2143.02. Withdrawal of the rejection is respectfully requested.

E. New Claim 68 Is Patentable

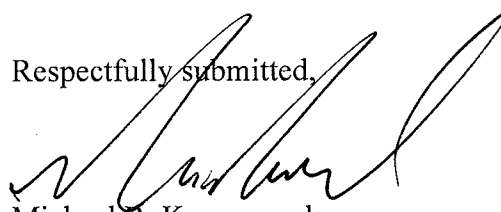
New claim 68 is patentable over the references cited in the Action. According to this claim, read in view of the specification (*e.g.*, page 4, third full paragraph and the Examples), the SiO_xF_y layer is formed by “ion assistance” due to the energy of the polyfluorocarbon ions. However, this is neither an ion assistance within the meaning of present claim 22 nor an ion co-

assistance within the meaning of page 4, fourth full paragraph, of the specification (the use of positive ions formed from a rare gas or a mixture thereof is required). To address the Examiner's question on page 17 of the Action in particular, in all the examples, the SiO_xF_y layer is obtained according to the process of new claim 68. (It is noted that in some examples (*e.g.*, Examples 3 and 5, see the table at page 12), there is also an ion co-assistance by means of a rare gas.) Applicant respectfully submits that claim 68 is patentable over the cited references.

F. Conclusion

Applicant believes that this is a full and complete response to the Office Action mailed August 21, 2008. A Notice of Allowance is requested. Should the Examiner have any questions, comments, or suggestions relating to this case, the Examiner is invited to contact Applicant's representative at (512) 536-3015.

Respectfully submitted,



Michael R. Krawzsenek
Reg. No. 51,898
Attorney for Applicant

FULBRIGHT & JAWORSKI L.L.P.
600 Congress Avenue, Suite 2400
Austin, Texas 78701
(512) 536-3020
(512) 536-4598 (facsimile)

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